

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): ~~Compliant~~Compliant substrate (5, 20, 30) comprising a carrier (1, 14, 21, 31) and at least one thin layer (4, 13, 23, 34) formed on the surface of said carrier and intended to be used as a seed for a hetero-epitaxial growth, the carrier and the thin layer being joined one to another by joining means (3, 11, 15, 16, 24, 25) such that the stresses brought by said structure are absorbed in whole or in part by the thin layer and/or the joining means, wherein said joining means comprises~~is selected from the group consisting of:~~ a layer of microcavities, ~~and a bonding interface whose bonding energy is controlled to permit the absorption of said stresses.~~ Claim 2 (Withdrawn) Process for fabricating a compliant substrate according to claim 1, characterized in that the layer of microcavities is created through implantation by bombardment of one or more gas species.

Claim 2 (Withdrawn): Process for fabricating a compliant substrate according to claim 1, characterized in that the layer of microcavities is created through implantation by bombardment of one or more gas species.

Claim 3 (Withdrawn): Process according to claim 2, characterized in that the gas species are chosen from among rare gases, hydrogen and fluorine.

Claim 4 (Withdrawn): Process according to claim 2, characterized in that doping agents are associated with the one or more gas species.

Claim 5 (Withdrawn): Process according to claim 2, characterized in that diffusion is made of the one or more implanted gas species.

Claim 6 (Withdrawn): Process according to claim 2, characterized in that implantation is followed by heat treatment.

Claim 7 (Withdrawn): Process according to claim 2, characterized in that said implantation is made via the substrate surface, the region lying between the substrate surface and the layer of microcavities providing said thin layer.

Claim 8 (Withdrawn): Process according to claim 7, characterized in that the region lying between the substrate surface and the layer of microcavities is thinned to form said thin layer.

Claim 9 (Withdrawn): Process according to claim 7, characterized in that implantation by bombardment is made via a sacrificial layer (2) carried by said substrate surface, said sacrificial layer then being removed.

Claim 10 (Withdrawn): Process according to claim 2, characterized in that said implantation is made via the substrate surface, this surface carrying a first thin layer, the region lying between the substrate and the layer of microcavities providing a second thin layer.

Claim 11 (Withdrawn): Process according to claim 10, characterized in that the layer of microcavities is made in the vicinity of the interface between the first thin layer and the substrate.

Claim 12 (Withdrawn): Process according to claim 10, characterized in that implantation by bombardment is made via a sacrificial layer carried by the first thin layer, said sacrificial layer then being removed.

Claim 13 (Currently Amended): Compliant substrate according to claim ~~13~~³⁵, characterized in that said bonding interface with controlled bonding energy is an interface resulting from a surface preparation and/or an interface resulting from a heat treatment and/or an interface resulting from a creation of defects.

Claim 14 (Currently Amended): Compliant substrate according to claim 13, characterized in that surface preparation is a control of roughness and/or hydrophiliea.

Claim 15 (Previously Presented): Compliant substrate according to Claim 13, characterized in that said joining zone also comprises at least one intermediate layer (22, 32, 33) between the thin layer (23, 34) and the carrier (21, 31).

Claim 16 (Previously Presented): Compliant substrate according to claim 15, characterized in that the intermediate layer (22, 32, 33) is a metal layer or metal alloy layer.

Claim 17 (Currently Amended): Compliant substrate according to claim 15, characterized in that said at least one intermediate layer is formed such that it comprises non-homogeneities~~able to relax stresses~~.

Claim 18 (Cancelled)

Claim 19 (Previously Presented): Compliant substrate (5, 20, 30) according to Claim 1, characterized in that said thin layer (4, 13, 23, 34) is in a first crystalline material and is intended to be used as hetero-epitaxial growth seed for a second crystalline material forming said structure.

Claim 20 (Currently Amended): Compliant substrate according to claim 19, characterized in that said thin layer is a pre-stressed layer by the presence of a foreign element in said first crystalline material~~in order to promote the compliance of said substrate~~.

Claim 21 (Original): Compliant substrate according to claim 20, characterized in that the foreign element is inserted through implantation by bombardment and/or inserted by diffusion.

Claim 22 (Previously Presented): Compliant substrate according to Claim 20, characterized in that said foreign element is a doping agent of the thin layer.

Claim 23 (Previously Presented): Compliant substrate (5, 20, 30) according to Claim 19, characterised in that said first crystalline material is a semiconductor.

Claim 24 (Previously Presented): Application of the compliant substrate (5, 20, 30) according to Claim 19, to the hetero-epitaxial growth of a crystalline material chosen from among GaN, SiGe, AlN, InN, and SiC.

Claim 25 (Withdrawn): Process according to Claim 3, characterized in that doping-agents are associated with the one or more gas species.

Claim 26 (Withdrawn): Process according to Claim 6, characterized in that said implantation is made via the substrate surface, the region lying between the substrate surface and the layer of microcavities providing said thin layer.

Claim 27 (Withdrawn): Process according to Claim 6, characterized in that said implantation is made via the substrate surface, this surface carrying a first thin layer, the region lying between the substrate and the layer of microcavities providing a second thin layer.

Claim 28 (Withdrawn): Process according to Claim 11, characterized in that implantation by bombardment is made via a sacrificial layer carried by the first thin layer, said sacrificial layer then being removed.

Claim 29 (Previously Presented): Compliant substrate according to Claim 14, characterized in that said joining zone also comprises at least one intermediate layer (22; 32, 33) between the thin layer (23; 34) and the carrier (21; 31).

Claim 30 (Cancelled)

Claim 31 (Previously Presented): Compliant substrate (5, 20, 30) according to Claim 18, characterized in that said thin layer (4, 13, 23, 34) is in a first crystalline material and is intended to be used as hetero-epitaxial growth seed for a second crystalline material forming said structure.

Claim 32 (Previously Presented): Compliant substrate according to Claim 21, characterized in that said foreign element is a doping agent of the thin layer.

Claim 33 (Previously Presented): Compliant substrate (5, 20, 30) according to Claim 22, characterized in that said first crystalline material is a semiconductor.

Claim 34 (Previously Presented): Application of the compliant substrate (5, 20, 30) according to Claim 23, to the hetero-epitaxial growth of a crystalline material chosen from among GaN, SiGe, AlN, InN and SiC.

Claim 35 (New): Compliant substrate (5, 20, 30) comprising a carrier (1, 14, 21, 31) and at least one thin layer (4, 13, 23, 34) formed on the surface of said carrier and intended to be used as a seed for a hetero-epitaxial growth, the carrier and the thin layer being joined one to another by joining means (3, 11, 15, 16, 24, 25) such that the stresses

brought by said structure are absorbed in whole or in part by the thin layer and/or the joining means, wherein said joining means comprises a bonding interface whose bonding energy is controlled to permit the absorption of said stresses.

Claim 36 (New): Compliant substrate according to Claim 1, characterized in that said joining zone also comprises at least one intermediate layer (22, 32, 33) between the thin layer (23, 34) and the carrier (21, 31).

Claim 37 (New): Compliant substrate according to claim 36, characterized in that the intermediate layer (22, 32, 33) is a metal layer or metal alloy layer.

Claim 38 (New): Compliant substrate according to claim 36, characterized in that said at least one intermediate layer is formed such that it comprises non-homogeneities.

Claim 39 (New): Compliant substrate (5, 20, 30) according to Claim 36, characterized in that said thin layer (4, 13, 23, 34) is in a first crystalline material and is intended to be used as hetero-epitaxial growth seed for a second crystalline material forming said structure.

Claim 40 (New): Compliant substrate according to claim 39, characterized in that said thin layer is a pre-stressed layer by the presence of a foreign element in said first crystalline material.

Claim 41 (New): Compliant substrate according to claim 40, characterized in that the foreign element is inserted through implantation by bombardment and/or inserted by diffusion.

Claim 42 (New): Compliant substrate according to Claim 40, characterized in that said foreign element is a doping agent of the thin layer.

Claim 43 (New): Compliant substrate (5, 20, 30) according to Claim 39, characterised in that said first crystalline material is a semiconductor.

Claim 44 (New): Application of the compliant substrate (5, 20, 30) according to Claim 39, to the hetero-epitaxial growth of a crystalline material chosen from among GaN, SiGe, AlN, InN, and SiC.

Claim 45 (New): Compliant substrate according to Claim 36, characterized in that said joining zone also comprises at least one intermediate layer (22; 32, 33) between the thin layer (23; 34) and the carrier (21; 31).

Claim 46 (New): Compliant substrate (5, 20, 30) according to Claim 36, characterized in that said thin layer (4, 13, 23, 34) is in a first crystalline material and is intended to be used as hetero-epitaxial growth seed for a second crystalline material forming said structure.

Claim 47 (New): Compliant substrate according to Claim 41, characterized in that said foreign element is a doping agent of the thin layer.

Claim 48 (New): Compliant substrate (5, 20, 30) according to Claim 42, characterized in that said first crystalline material is a semiconductor.

Claim 49 (New): Application of the compliant substrate (5, 20, 30) according to Claim 43, to the hetero-epitaxial growth of a crystalline material chosen from among GaN, SiGe, AlN, InN and SiC.

Appl. No. 09/600,590
Response dated April 7, 2004
Reply to Not. of Non-Compliant Amdt. of Mar. 23, 2004

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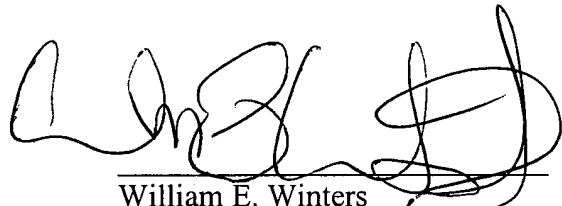
CONCLUSION

In view of the foregoing, Applicant believes all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 408-282-1857.

Respectfully submitted,

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